

PURCHASE DESCRIPTION

REFLECTOMETER, TIME DOMAIN

4298 REV G

- 1.0** **GENERAL** This procurement requires a portable time domain reflectometer to identify and locate faults on metallic cables.
- 2.0** **CLASSIFICATION** The equipment shall meet the requirements of MIL-PRF-28800F class 3 for Navy shipboard, submarine and shore applications.
- 3.0** **OPERATIONAL REQUIREMENTS** The equipment shall be capable of identifying and locating faults on metallic cable within the minimum accuracies, limits, and specifications detailed below. An internal Y-T chart recorder is required.
- 3.1 **Measurement distance**
- 3.1.1 Range: 0 to 2,000 ft (0 - 610 m)
- 3.1.2 Resolution: 0.5 ft (0.15 m)
- 3.1.3 Accuracy:  $\pm 1$  ft (0.30 m) or  $\pm 1\%$  of measured distance, whichever is greater
- 3.2 **Vertical system** The vertical system shall be provided for measuring reflection coefficient ( $\rho$ ) and return loss (dB).
- 3.2.1 Scales: 5 mp/Div to 500 mp/Div
- 3.2.2 Accuracy:  $\pm 3\%$  of full scale range
- 3.3 **Horizontal system**
- 3.3.1 Scales: 1 ft/Div to 200 ft/Div. Meters: 0.25 meter/Div to 50 meter/Div
- 3.3.2 Cursor position: Any distance to full scale
- 3.4 **Cursor Ohm readout** The equipment shall be capable of computing and displaying the impedance mismatch that causes a reflection at the cursor.
- 3.4.1 Range:  $1\Omega$  to  $1\text{ k}\Omega$
- 3.4.2 Resolution: 3 significant digits
- 3.4.3 Accuracy: 10%
- 3.5 **Velocity of propagation** The equipment shall be capable of adjusting the velocity of propagation for measurements on cables with various dielectric types.
- 3.5.1 Range: 0.30 to 0.99
- 3.5.2 Resolution: 0.1
- 3.5.3 Accuracy:  $\pm 1\%$
- 3.6 **Memory** The equipment shall be capable of storing the currently displayed waveform into internal memory. The equipment shall have the capability to recall the stored waveform for analysis.
- 3.7 **Display** The equipment shall have an oscillographic presentation to display the measured waveform.

- 3.8 Chart recorder A Y-T chart recorder shall be provided to record the displayed waveform. The recorder shall operate from the internal power source of the equipment.

#### **4.0 GENERAL REQUIREMENTS**

- 4.1 Power source MIL-PRF-28800F nominal power source requirements are invoked.
- 4.1.1 DC internal power source: Internal rechargeable batteries and charger are required. Minimum operating time shall be 5 hours after a recharge time not to exceed 20 hours.
- 4.2 Weight 10 kg (22 lb) maximum.
- 4.3 Technical manual A technical manual shall be provided in both printed and electronic formats. The printed format shall be otherwise normally provided. The electronic format shall consist of the installation programs for the latest version of Adobe Acrobat for all computer platforms for which Acrobat is available and the technical manual in an electronic form that is readable through use of the Adobe Acrobat application.
- 4.4 Lithium Batteries Per MIL-PRF-28800F, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.
- 4.5 Calibration Interval: The calibration interval shall be 12 months minimum as in accordance with MIL-PRF-28800F.